No. 8100045

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

John Bodger and Sons Company

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

COSMOS

'Sunny Gold'

PLANT VARIETY PROTECTION OFFICE · U.S. DEPARTMENT OF AGRICULTURE

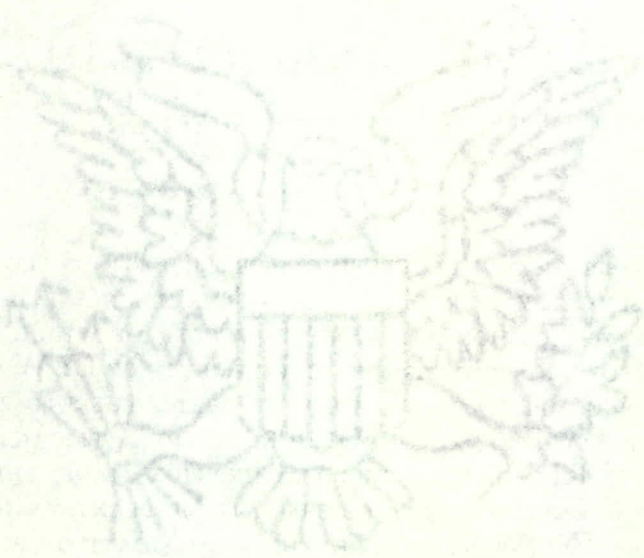
In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 11th day of June in the year of our Lord one thousand nine hundred and eighty-one.

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R Block

Secretary of Agriculture



COSMOS, SUNNY GOLD 8100045

BREEDING PROCESS

EXHIBIT 17 R/S

1968 COSMOS, SUNSET

6815

1969 I,II. 69_{I} 24 — HIGH-INBREEDING

1970 69_{II} 01

70 COM. 1, 70 COM. 2

1970 70 COM. 2 X Y 70
(SUNSET SEGREGATE YELLOW)

1971 F1 : ALL NORMAL (TALL)

1972 I F2 SEGREGATED ----> ONLY COMPACT YELLOW (A GROUP)

1972 II --- 1978 ---------- GENE ANALYSIS OF COMPACT CHARACTER.

THE GENE STRUCTURE OF COMPACT CHARACTER;

$$(m\,m)\quad \frac{c_1^{-l}\ c_2\ c_3}{}\ :\ \frac{c_1^{-+}\ c_2\ c_3}{}$$

$$c_1^{-l} : c_1^{-+} \longrightarrow c_1^{+} : c_1^{-l}$$

Recombination

N : n = Normal

C : c = Compact

l : + = Lethal

RACERASE BOND

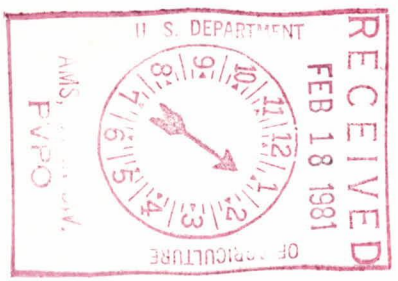
SOUTHWORTH CO. U.S.A.

25% COTTON FIBER

8100045

13 A) To date the only varient to occur during reproduction and multiplication of the selected line of Cosmos has been less than .001% taller plants out of several hundred thousand plants. Genetic analysis showed the ratio of segregating tall plants would be 1/1000 because the ratio c/C is estimated to be 1/33 therefore $(1/33)^2 = 1/1000$. The genotype of the tall plants are $C_1\ C_1$, $C_2\ C_2$, $C_3\ C_3$ with the total of three being approximately 1/1000. Other varients that have been seen in very low numbers (less .001%) are yellow instead of gold flower color and plants with more nodes than the normal 6 to 7 but these are very difficult to distinguish from the normal type. The variety can be considered stable as from several hundred thousand plants only a small number have been off types. See enclosed pedigree for geneology, breeding method and selection method.

13 B) Cosmos Sunny Gold is novel because of its compact growth habit reaching less than 50 cm. tall compared with Cosmos Lemon Yellow Crest which is almost 100 cm. tall. Sunny Gold has a higher level of third order branching than Cosmos Lemon Twist which is the most similar variety. Thus Sunny Gold has a dense growth habit rather than the more loose habit of Lemon Twist and this third order branching also extends the blooming period longer than either Lemon Twist or Lemon Crest.


U. S. DEPARTMENT
RECEIVED
FEB 18 1981
OF AGRICULTURE

13 B) Novelty of Sunny Gold is based on the compact growth habit with gold flowers. This variety is dwarfer than any other Cosmos sulphureus variety on the market. It has a higher level of third order branching than any other Cosmos which gives the plant a dense growth habit rather than the more loose habit of other Cosmos varieties. (See enclosed photos for growth habit). This third order branching also extends the bloom period longer than the present Cosmos varieties.

EXHIBIT B R/S

13 D) See the enclosed samples of Cosmos Sunny Gold and Cosmos Lemon Twist, the comparison variety, for seed differences. It took seeds of both varieties six days to germinate. No differences were noted in the seedling stage of growth of the two varieties as appearance and color of the stems, cotyoledons, and first true leaves were similar.

Anthesis of the first flower occured after 43 days for Lemon Twist and 57 days for Sunny Gold from a 5/22/80 sowing date. Both varieties had semi-double bilaterally symmetrical flowers approximately 4 cm. across (See silhouette exhibit). The RHS color chart reading for flower color was 9A for Lemon Twist and 17A for Sunny Gold. Sunny Gold has shorter internodes on all levels of branching and has heavier third order branching than Lemon Twist. This gives Lemon Twist a much looser informal growth habit than Sunny Gold which has a more compact formal bush growth habit. (See enclosed pictures for comparison of growth types.)

At maturity the height was an average of 45 cm for Lemon Twist and 29 cm for Sunny Gold. The average internode length of the main stem was 5 cm for Lemon Twist and 4 cm for Sunny Gold from the base of the main stem to the axil of the top branch. On Sunny Gold it was 5 cm from the axil of the top branch to the involucre of the terminal flower while Lemon Twist was 14 cm. Foliage color at maturity was 137C for both Sunny Gold and Lemon Twist. For differences in leaf serration of the two varieties see the enclosed silhouette exhibits. There were no apparent disease problems on either variety.

RACERASE BOND

SOUTHWORTH CO. U.S.A.

25% COTTON FIBER

COSMOS SUNNY GOLD

COSMOS SUNNY GOLD

EXHIBIT C
(Cosmos)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY

COSMOS (COSMOS SPP.)

NAME OF APPLICANT(S)

JOHN BODGER & SONS CO.

ADDRESS (Street and No., or R.F.D. No.; City, State, and ZIP Code)

P.O BOX 5090
EL MONTE, CALIF 91734

FOR OFFICIAL USE ONLY

PVPO NUMBER

8100045 P7

VARIETY NAME OR TEMPORARY DESIGNATION

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in first box (e.g. 0 8 9 or 0 8) when number is either 99 or less or 9 or less.

1. SPECIES:

[2] 1 = Bipinnatus, Cav. 2 = Sulphureus, Cav.
3 = Diversifolius, Otto. 4 = Atrosanguineus, Ort.
5 = Species Cross _____

2. PLANT:

[1] 1 = Annual 2 = Perennial
[1] 1 = Glabrous 2 = Sparsely Pubescent 3 = Pubescent

3. MATURITY:

[5][7] Days from sowing to first flower (SOWED) 5/22/80
[ ][ ] Days earlier than _____ variety
Maturity same as _____ variety
[1][4] Days later than LEMON TWIST variety FROM A 5/22/80 SOWING

4. PLANT HEIGHT:

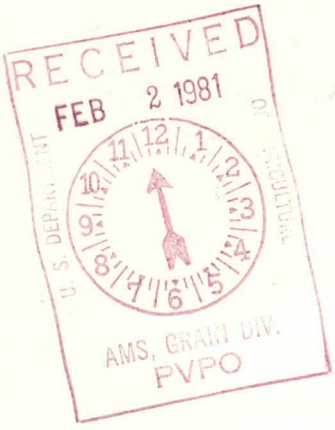
[1] 1 = Dwarf (< 40 cm) 2 = Medium Tall (41-80 cm)
3 = Tall (> 81 cm)

[1][6] cm shorter than LEMON TWIST variety
Height same as _____ variety
[ ][ ] cm taller than _____ variety

5. LEAF: (Blade + Petiole)

[1][3][5] mm long [9][0] mm wide

MARGIN: [2] 1 = Entire 2 = Pinnately Cut 3 = Bipinnately Cut


RECEIVED
FEB 2 1981
U.S. DEPARTMENT OF AGRICULTURE
AMS, GRAIN DIV.
PVPO

8100046 P2

6. FLOWER HEADS:

[0][5][0] mm Diameter

[2] 1 = Single (Disk Florets Normal) 2 = Semi-Double

(Some Disk Florets Normal - Some Petaloid) 3 = Double

(Most or all Disk Florets Petaloid)

[2] Disk Floret Color: 1 = Yellow 2 = Red 3 = Other

[1] Ray Floret Color: 1 = Solid 2 = Bicolor

Primary Color GOLD 17A. Secondary Color NA.

Name of Color Standard used RHS

Describe Color Pattern SOLID GOLD

7. ACHENES:

[1] 1 = Glabrous 2 = Bristly Haired

[1][9][0] gm weight per 1000 seeds.

[1][5] mm long [0][1] mm wide

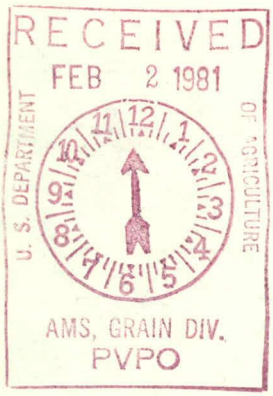
8. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[0] Powdery Mildew [0] Mosaic [0] Fusarium Wilt

[0] Alternaria Leaf Spot [0] Other (Specify) _____

9. INDICATE VARIETIES MOST CLOSELY RESEMBLING THAT SUBMITTED

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Flower Size	LEMON TWIST	Plant Size	LEMON TWIST
Flower Type	LEMON TWIST	Leaf Size	LEMON TWIST
Flower Color	GOLD CREST	Maturity	GOLD CREST


RECEIVED
FEB 2 1981
U. S. DEPARTMENT OF AGRICULTURE
AMS, GRAIN DIV.
PVPO

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and $500 fee ($250 filing fee and $250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.

13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.

13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.

13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.

13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.

FEB 2 1981

14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)

15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

FORM APPROVED
OMB NO. 40-R3822

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY	1b. VARIETY NAME	FOR OFFICIAL USE ONLY
3266	SUNNY GOLD	PV NUMBER 8100045
2. KIND NAME: COSMOS	3. GENUS AND SPECIES NAME: COSMOS SULPHUREUS	FILING DATE: 2/2/81 — TIME: 12:00 A.M. (P.M.)
4. FAMILY NAME (BOTANICAL): COMPOSITE COMPOSITAE RJS	5. DATE OF DETERMINATION: 8-5-78	FEE RECEIVED: $ 500.00 $ 250.00 — DATE: 2/2/81 4/29/81
6. NAME OF APPLICANT(S): JOHN BODGER & SONS CO.	7. ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*): P. O. Box 5090 El Monte, Ca. 91734	8. TELEPHONE AREA CODE AND NUMBER: (213) 442-6161

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (*Corporation, partnership, association, etc.*)	10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION	11. DATE OF INCORPORATION
CORPORATION	CALIFORNIA 2-7-1912	2-7-1912

12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS:

HOWARD BODGER
P. O. Box 5090
El Monte, Ca. 91734

13. **CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:**

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [X] 13B. Exhibit B, Novelty Statement.
- [X] 13C. Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)* ROUGH DRAFT OF EXHIBIT C FORM SUBMITTED RJS 2/4/81
- [X] 13D. Exhibit D, Additional Description of the Variety.

NOTE: Not submitted as exhibit C for Cosmos not ready.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [ ] YES [X] NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?	14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED?
[ ] YES [X] NO	[ ] FOUNDATION [ ] REGISTERED [ ] CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO *(If "Yes," give name of countries and dates.)*

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO *(If "Yes," give name of countries and dates.)*

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? [X] YES [ ] NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

September 24, 1980
(DATE)

JOHN BODGER & SONS CO.
Howard S. Bodger President
(SIGNATURE OF APPLICANT)

(DATE)

(SIGNATURE OF APPLICANT)

FORM GR-470 (1-78)